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ABSTRACT

A three-year project involving 27 participants was conducted to develop and apply a model vocational rehabilitation service program for cerebral palsied individuals; the project included assessment, work adjustment training, and placement. Included in the project were the following activities: (1) demonstrating a service delivery model of vocational assessment, work adjustment training, and placement for individuals moderately and severely disabled with cerebral palsy; (2) developing and continuing interagency cooperation among rehabilitation agencies, social service agencies, and schools; (3) identifying services essential to vocational adjustment of project clients; (4) exploring the needs of project clients in the areas of job development, post-employment services, and other services designed to enhance the independent functioning of the client in the community; (5) disseminating the Vocational Technology Project's model of task analysis, assessment, work adjustment training, placement, and follow-up of adolescent and adult clients with cerebral palsy; (6) exploring potentials for project refunding or spin-off; and (7) generating and disseminating a final project report. Inasmuch as the project was deemed successful, suggestions were offered to rehabilitation professionals interested in future replication of the program. (The appendixes to the report are available separately--see note.) (MN)

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VOCATIONAL TECHNOLOGY FOR CEREBRAL PALSIED INDIVIDUALS PROJECT

END-OF-PROJECT REPORT

1978 - 1981

VOLUME I

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INSTITUTE FOR THE STUDY OF
MENTAL RETARDATION AND RELATED DISABILITIES
THE UNIVERSITY OF MICHIGAN • ANN ARBOR, MICHIGAN

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End of Project Report

Vocational Technology for Cerebral Palsied Individuals Project

by

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Richard E. Darnell, Ph.D., R.P.T., C.R.C.
January, 1982

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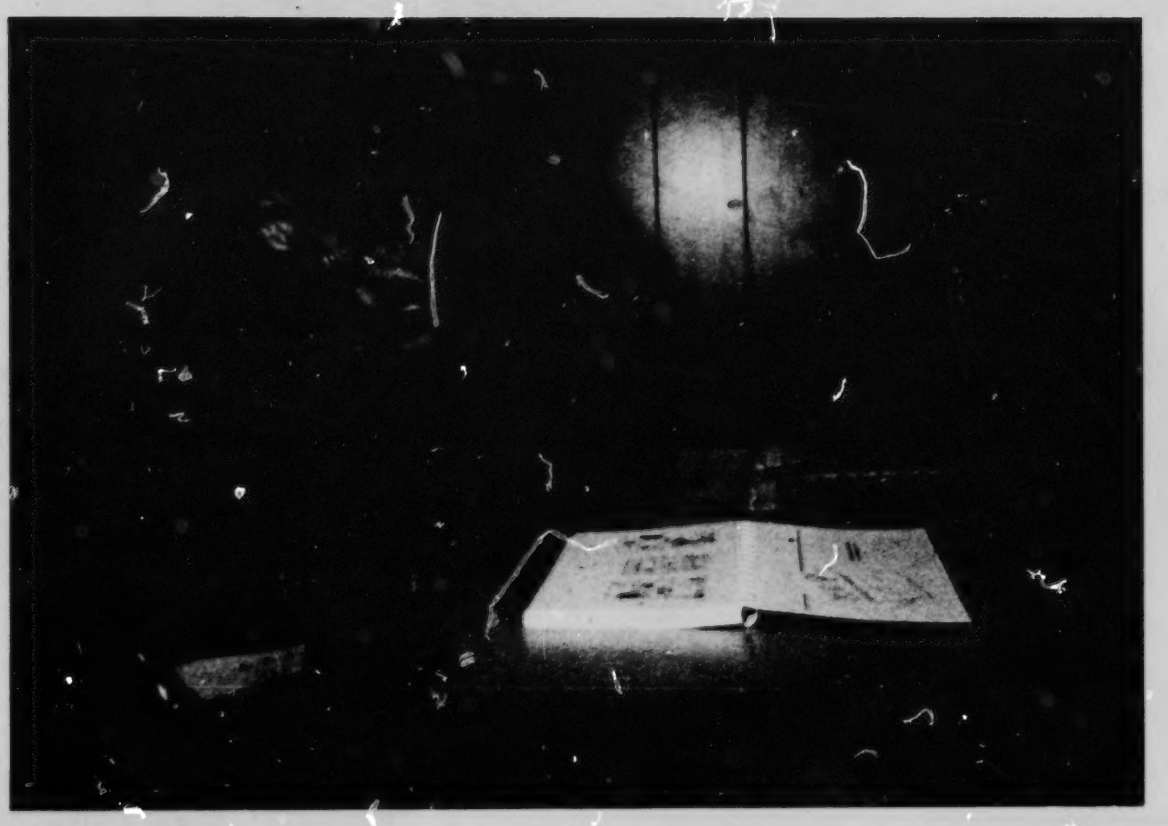

Verbal-Cognitive

When recommended by the client's referral source, a full psychological evaluation was administered by a qualified psychologist as part of the vocational assessment, as both personal adjustment data and intellectual functioning data were necessary for designing a full management plan.

Psychological data aided the vocational evaluator in structuring an assessment. Rather than using psychological data to predict vocational success, such information was used with other data to alleviate difficulties, develop strengths, and define learning style. For example, limited intellectual or performance functioning may have indicated the need for task analysis of work samples. Psychological information could also suggest methods of trainer intervention; e.g., utilizing verbal cues or modeling techniques. When a client was intellectually limited, determining and building on existing strengths often prevented failure.

Both formal and informal measures were utilized to assess receptive language comprehension. Speech and language assessments provided a complete expressive and

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Chapter 1

INTRODUCTION

In August, 1978, the Institute for the Study of Mental Retardation and Related Disabilities (ISMRRD) at the University of Michigan received support from HEW's Rehabilitation Services Administration for a three-year project directed toward the vocational needs of people with cerebral palsy. The task of this project was to develop and apply a model vocational rehabilitation service program for these people which would include assessment, work adjustment training, and placement.

Purpose and Structure of the Final Report

This final report describes project activities and documents their efficiency and effectiveness as they relate to specific goals and objectives. The report is structured in the following manner.

1. It is organized specifically to provide the funding agency with information regarding achievement of stated project goals and objectives, using the evaluation methodology approved by the funding agency for Year III.
2. The report deals primarily with project activities in Year III, the third and final year of the project (August 15, 1980 through August 14, 1981) and with activities during the authorized extension period through December 31, 1981. Activities during Years I and II are well described in the annual reports and continuation proposals which pertain to these periods and which have been submitted previously. The evolutionary nature of the project (and the need to establish an approved data base specifically related to project activities in Year III) argues in favor of this approach. Where information from Years I and II are helpful in

interpreting Year III activities, these data are included.

3. The narrative has been kept brief through the use of appendices containing the extensive data gathered by project staff.
4. A special effort has been made to include objective and quantitative data related to the accomplishment of project activities, while keeping this information distinct from subjective impressions regarding the strengths and weaknesses of the therapeutic model which was developed.
5. Implications for further development and dissemination of the model are included in Chapter 3.

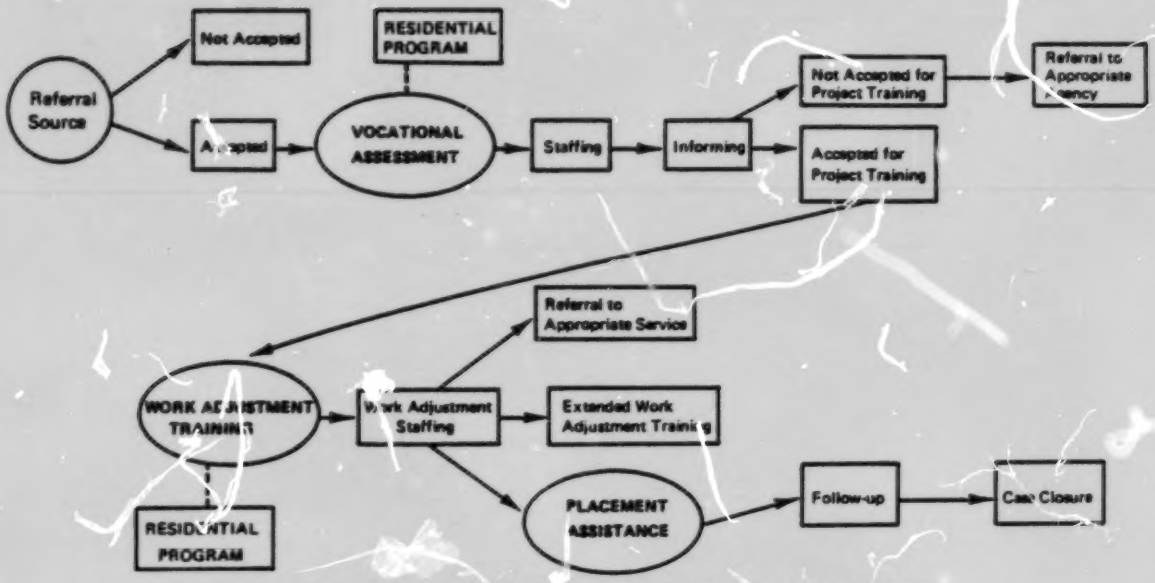
Project Description

The idea that severely handicapped people can work and lead productive and fulfilling lives has been documented by many researchers in the last decade. However, cerebral palsy people have generally not benefited from changing attitudes; these individuals have been greatly underserved in vocational programming. In the past persons with cerebral palsy were institutionalized, without access to training and placement services, underemployed or unemployed and often considered "non-feasible" for rehabilitation services.

This organization (ISMRRD) therefore sought and received support from HEW's Rehabilitation Services Administration in order to develop "Vocational Technology for Cerebral Palsied Individuals," a model of vocational services for cerebral palsied adolescents and adults in the areas of work skills and community independence. Figure 1-1 illustrates the organization of the model service delivery system developed with HEW-RSA support.

FIGURE 1-1

VOCATIONAL TECHNOLOGY FOR CEREBRAL PALSIED INDIVIDUALS*
SERVICE DELIVERY SYSTEM MODEL



*Vocational Technology for Cerebral Palsied Individuals is a federal project funded by Rehabilitation Services Administration, Grant No. G 008004856. Project objectives focus on the development and implementation of a service delivery system for individuals with cerebral palsy. The project is housed out of the Institute for the Study of Mental Retardation and Disabilities, University of Michigan.

The objectives of the Vocational Technology for Cerebral Palsied Individuals Project were to:

1. Demonstrate a service delivery model of vocational assessment, work adjustment training, and vocational placement for moderately and severely disabled people with cerebral palsy;
2. Develop and continue inter-agency relationships;
3. Identify services essential to vocational adjustment of project clients;
4. Explore the unique needs of project clients in the area of job development, post-employment services, and other services designed to enhance the independent functioning of the client in the community;
5. Disseminate the Vocational Technology Project's model of task analysis, assessment, adjustment, training, placement, and follow-up of adolescent and adult clients with cerebral palsy;
6. Explore the potential for project refunding or "spinoff" design; and
7. Generate, produce, and publicize a final report to document and more widely disseminate the project findings.

The project used a multidisciplinary approach. Each client received a two-week interdisciplinary assessment and a 10-week work adjustment training period which emphasized both vocational and independent-living skills. The services of various placement agencies were also available to help clients choose opportunities appropriate to their interests and abilities.

Chapter 2

OBJECTIVES, ACTIVITIES, AND ACCOMPLISHMENTS RELATING TO PROJECT OBJECTIVES

OBJECTIVE 1: Demonstrate a service delivery model of vocational assessment, work adjustment training, and vocational placement for moderately and severely disabled people with cerebral palsy.

SOLICITATION OF REFERRALS

General efforts undertaken during Year II continued into the third year to publicize the project model and services and to solicit client referrals. General informational literature consisting of client admissions criteria, a project profile, and a project brochure were sent to Michigan Rehabilitation Services local offices, to state and local affiliates of United Cerebral Palsy, and to other agencies providing services to adolescents and adults with cerebral palsy. Appendix 2.1 presents examples of these materials.

Articles about the Vocational Technology for Individuals with Cerebral Palsy Project appeared in the ORS Region V Center for Continuing Education's Continuing Education News (Vol. 7, No. 2, November, 1980) and in the Ann Arbor News (March 1, 1980). See Appendix 2-2 for facsimile copies of these and other articles.

The project associate succeeded in publicizing the project further among the general public by recording "Cerebral Palsy Vocational Rehabilitation Program" and "Research on Vocational Training for Cerebral Palsied Individuals" for broadcast over radio station WUOM's Prescription for Health Program. The program was aired September 6, 7, 13, and 14, 1980 and reached a wide listening audience.

Project Presentations

A comprehensive project presentation was prepared to enable any staff member to provide a brief presentation for any requesting group, agency, or individual. The content and format of this presentation is included in Appendix 2-3. Presentations held at ISMRRD included a tour of the simulated workshop. A presentation policy was developed and observed throughout the life of the project in order to prevent these presentations from interfering with regular staff responsibilities.

1. There were two kinds of requests for presentations or visits to the project:
   a. General Information.
   b. Potential Referrals.
2. Presentations were limited to one of each type per month, each handled by a single staff member.
3. A videotape and slide-tape of each program phase was used to enable a single staff member to make project presentations.
4. Requests for presentations were made to and assigned by the project associate.
5. Requests for other than the "standard" presentation were considered at staff meetings. This included any individual staff members request for clarification of any particular phase or part of the general project.

Project Videotape

The staff, under the direction of the project associate and with the assistance of the University's Michigan Media facility, completed a Vocational Technology Project orientation videotape in Spring, 1981. This proved to be an effective way of acquainting rehabilitation personnel with the project and soliciting referrals.

Client Intake, Assessment, Staffing, and Informing

The intake and assessment model for determining the independent living and vocational needs and capabilities of cerebral palsied people involved a multidisciplinary approach. Since a person's functioning in any one aspect of his/her life affected performance in other areas, the assessment took into account the cerebral palsied person's adjustment and function in areas in addition to those typically associated with work skills and abilities. The assessment strove to identify the strengths and weaknesses that each client brought to the habilitation process, and also identified the supports and barriers that the person's external environment presented.

The referral, intake, assessment, and informing phase of the project was the major responsibility of the rehabilitation counselor. Referrals were accepted from public and private agencies and from professional and private individuals. Agencies that frequently referred clients to the project included Michigan Rehabilitation Services, United Cerebral Palsy, and Community Mental Health. Other referrals were made by parents, guardians, and doctors. Intake forms are illustrated in Appendix 2-4.

A total of 82 clients were referred for services during the project; general descriptive information about these people is presented in Appendix 2-5. Forty-five of these referrals had no prior vocational assessment nor had involvement with a vocational training program.

Agency funding support for persons referred to the program ranged from full support to none at all. Funding eligibility was not a criteria for a client's acceptance into the program, since fees were on a sliding scale. In cases where a client lived a long distance from Ann Arbor, the primary question was his ability to arrange transportation to and from the program each weekend. Another constraint was the requirement that the client have at least minimal ability to assist with his own self care.

Intake

When a referral was received, relevant background information about the client was sought from all agency, school, and medical sources. Intake forms (See Appendix 2-4) were filled in for each client. Permission to utilize photographic or videotape recording records for educational purposes was also obtained at this time. When this initial data collection phase was completed, a preservice summary was prepared; this contained client information pertaining to family and social background, medical, dental, and psychological data, education, vocation, and finances.

Utilizing ISMRRD's clinical admissions committee, the client's case was reviewed and disciplinary assignments made. Plans for assessment strategies were made on the basis of clinical decisions, and both the client and referral source were advised. The project was oriented primarily toward adult services (and particularly vocational training and work adjustment); consequently, the assessment emphasized vocational services, with supplemental input from other disciplines as: audiology, speech pathology, physical and occupational therapy, psychology, social work, psychiatry, physiatry and other medical specialities, dentistry and nutrition.

Of the 82 clients referred to the project for services during our three years of operation, 27 were admitted for assessment. Appendix 2-6 presents an outline summary of plans developed for these clients.

Before a client underwent vocational evaluation, the project staff met with the recommended disciplinary evaluators to review pertinent background information. Discussion centered on the client's vocational goals, assets, potential, special medical or behavior problems, and management strategies appropriate for the client in question. The plans that resulted emphasized specialized methods and training techniques to ensure that the client received a comprehensive evaluation and that potential strengths and limitations for vocational programming were identified.

Assessment

The assessment model used in the project (See Figure 2-1) covered a two-week period: the first week emphasized disciplinary evaluation and formal diagnostics, and the second week emphasized work skills and behavioral observations in a work setting. Appendix 2-7 presents the assessment schedule. The project's prescriptive assessment addressed three areas of client data: personal and background information, formal and informal tests and measurements, and work sample training results. The value of the assessment depended upon the client's level of awareness, the evaluator's ability to analyze the client's strengths and weaknesses, and the development of an appropriate teaching/training strategy.

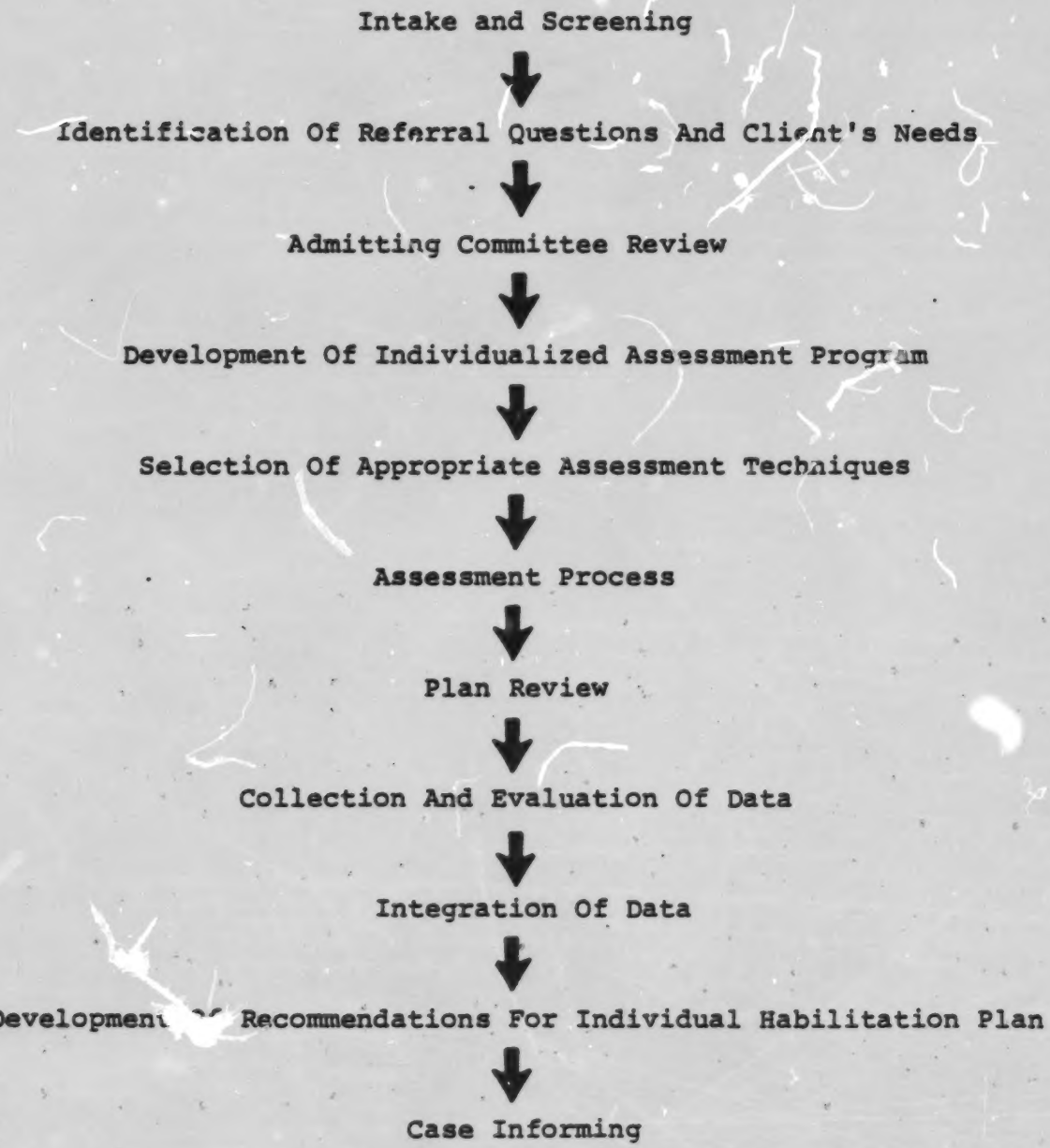
Individual assessment objectives and strategies were established prior to the assessment for each client on the basis of background and referral information. These objectives and strategies were modified throughout the process as additional client information was collected; at all times, the focus was on using all available data to design an individually appropriate training program for each client.

Formal and informal measurements provided client data in the following areas: vocational motivation, interest and sophistication; cognitive-verbal functioning; sensori-motor ability; basic academics; social emotional adjustment; and adaptive behavior. Appendix 2-8 presents a listing of methods and techniques used to elicit this information.

Tests were used for two purposes: 1) to obtain or verify information about client's strengths, weaknesses, learning style, and emotional adjustment in order to establish a baseline of functioning in these areas; and 2) to provide a basis for objective, consistent reporting to the project team and others involved with any individual client. Appropriate use of test during assessment aided in determining a client's needs in relation to personal and vocational adjustment and enabled the staff to develop strategies to meet those needs. Receptive language testing, for example, would let the staff know whether or not to use verbal cues during training.

FIGURE 2-1

ASSESSMENT MODEL


Intake and Screening
Identification Of Referral Questions And Client's Needs
Admitting Committee Review
Development Of Individualized Assessment Program
Selection Of Appropriate Assessment Techniques
Assessment Process
Plan Review
Collection And Evaluation Of Data
Integration Of Data
Development Of Recommendations For Individual Habilitation Plan
Case Informing

Vocational Interest, Motivation, and Sophistication

Information about client's interest and motivation was obtained through informal interviews and review of information, "on-the-job" observation of clients, and formal tests. The informal interview enabled the client and evaluator to explore the client's knowledge and expectations about work in a related way. The project developed a set of key questions (See Figure 2-2) which has been found useful in structuring the interview. During this interview, the client also had the opportunity to learn about the project's assessment approach and what skills and knowledge he/she could expect to gain from the experience.

Vocational inventories were used to inform the client about career options and, indirectly, to learn something of the client's level of work orientation, occupational realism, and vocational sophistication. Interest measures were directed at client's potential vocational levels; i.e., professional, skilled, semi-skilled, or non-skilled levels. On the basis of the client's background and stated interest, the counselor chose one or more vocational tests to delineate job fields of possible interest. The project staff also utilized group counseling to enhance the client's understanding of the world of work and career options. Observations of the client during sample work acquisition and production was important, in order to supplement the interview and background information. Such observation was important also for those cases involving the non-verbal client or the client who lacked vocational experience. During observation, the evaluator noted such factors as attending skills, promptness in beginning work, willingness to follow rules and supervision, indications of interest and enjoyment of work, and reinforcement needs.

FIGURE 2-2

ORIENTATION INTERVIEW

1) Explain evaluation and schedules. Describe client reaction.

2) What are your feelings about working?

3) Have you ever worked?

4) What type of jobs have you had?

5) Did you like them?

6) If you could get a job, what type of work would you like to do?

7) Have you ever considered working? What did you consider doing?

8) What does a _____ do?

9) How much does he get paid?

10) What type of training and education do you need to be a _____?

11) Have you had that type of training and education?

COMMENTS

receptive language evaluation for each client. The Peabody Picture Vocabulary Test, which was utilized to obtain a formal measure of receptive language ability, measures the ability to associate a vocalized word with a pictorial representation of the world. An age-equivalent score is provided indicating how a client functions in the receptive language area in relation to his peers.

Receptive language ability was determined informally as part of the vocational assessment; this involved observation of client's ability to utilize verbal cues, follow direction, and retain verbal information. Expressive language ability was also assessed throughout the entire first week of evaluation. Some preliminary assessment of experience with non-oral communication was evaluated when appropriate.

Sensorimotor Functioning

Sensori-motor functioning was assessed in the following areas: vision screening and color-vision testing, auditory screening, perceptual-motor functioning, tactile discrimination ability, and fine and gross motor ability.

The University of Michigan Hospital Ophthalmological staff administered vision screening when a need was indicated or when a client's vision ability was unknown. The Dvorine Color Plates Test was utilized in order to assess for color blindness.

When audiometric testing was indicated, it was usually administered through the Institute's Audiology screening unit. Service was rendered or appropriate referrals were made on the basis of the auditory screening.

The Bender Visual Motor Gestalt Test (BVMGT) was utilized to assess clients' perceptual-motor functioning. This test was generally administered during the psychological evaluation. When a need was demonstrated, further comprehensive assessment of the client's perceptual-motor functioning was carried out as part of the psychological evaluation. Such assessment was accomplished also through observation of a client's ability to accomplish informal work sample tasks. This

enabled evaluators to observe the client's eye-hand coordination, ability to perform motoric processes sequentially, and perceptual discrimination ability.

Tactile discrimination was assessed by means of the Haptic Visual Discrimination Test for those clients whose motor performance was appropriate. This test involves the manipulation of objects in the hand to discriminate their particular shape, size, texture, and spatial arrangements, and to form an accurate mental representation of the subject.

The evaluation of the individual client's motor skills was designed by the physical and occupational therapist. Our staff found that the usefulness of standard motor tests (Bruininks-Oseretsky Test of Motor Proficiency, Denver Developmental Screening Test, Lincoln-Oseretsky Motor Development Scale) were limited for project

clients because of the severity of their dysfunctions. In order to insure a comprehensive sensori-motor evaluation, the staff developed a special assessment form for project clients. The evaluation began with a review of the client's record to obtain his or her sensori-motor history. In some cases when it was feasible, the client was interviewed before the evaluation. The evaluation itself addressed the following areas: social, posture and tone, range of motion, reflexology, strength, gross motor, hand use/fine motor, respiratory function, sensori-motor, olfactory discrimination, auditory discrimination, visio-vestibular, and perceptual motor. Results are listed according to degree of difficulty--from head raising in the prone position to thumb opposition--and all tasks are demonstrated in a developmental sequence. This information enabled the therapist to determine potential interfering movement patterns. This form is presented in Appendix 2-9.

The second phase of motor assessment involved the client's performance of tasks using (and adapting) existing motor patterns. The two procedures utilized and evaluated for appropriateness were the Activities of Daily Living (ADL) evaluation and the Project's Functional Change Scale, presented in Appendix 2-10. These evaluations enabled the staff to observe how well clients used their existing motor skills in self care areas such as feeding, dressing, toileting, bathing, mobility, and recreation. Specific tasks were utilized to determine the client's manual and perceptual capacities. Any client exhibiting a developmentally high level of motor skill and eye-hand coordination is evaluated further by means of the McCarron Assessment of Neuromuscular Development (MAND).

Basic Academics

Basic academic skills were evaluated in conjunction with the vocational assessment. Since clients varied from preschool to high school academic levels, a variety of assessment measures were utilized. These included formal reading tests (Woodcock Reading Mastery and Peabody Individual Achievement Tests), a

mathematical test (Key Math Diagnostic Arithmetic Test), and general aptitude tests.

Basic academic assessment also involved using informal methods to ascertain how the client's academic competence might relate to his or her vocational potential. Analysis of such client skills as telling time, money handling, counting, basic reading, and measurement in relation to potential work was the main goal of this portion of the assessment. The prescriptive value of the assessment was to develop recommendations pertaining to the client's ability to learn and utilize academic skills required for a particular task. For example, could a client sign his/her name on a paycheck and, if not, how could he or she be helped to do so.

Behavioral Social-Emotional/Work Habits

Three methods were used to obtain information regarding a client's social-emotional behavior as related to work adjustment; (1) a review of background information revealed how the client related to peers and family members, how the client felt about him or herself, and what previous work experiences had been like, (2) social-emotional adjustment information was also obtained through formal tests, and (3) psychological evaluation and rating scales data were used to supplement background information.

Behavioral information obtained from observation during situational assessment was especially important. At this point, the prescriptive assessment was concerned with 1) obtaining baseline data related to on-the-job behavior, 2) utilizing the baseline data to define strengths and needs, and 3) prescribing techniques which encouraged appropriate adjustment. During the assessment for example, the evaluator tried to elicit appropriate on-the-job behavior by the client. Methods used included structuring the work space, isolating the client, positively reinforcing the client, modeling appropriate work behavior, and providing verbal feedback. The evaluator attempted to determine the most effective techniques for each client.

Adaptive Behavior

Assessment of clients' adaptive behavior was based upon background information, observation of their behavior during simulation work sessions and during free time, and on results from the Functional Change Scale and AAMD Adaptive Behavior Scale. Clients' proficiency in such areas as caring for personal needs, using transportation, making personal purchases, and interacting socially served to improve both vocational potential, and the sense of increased personal independence.

Baseline data in such areas enabled project staff to design detailed prescriptive plans and programs and to measure client progress. During the prescriptive assessment, the staff tried to determine how a client might develop skills in daily living. Both general and specific skills related to a vocational opportunity were considered in adaptive behavior assessment.

Work Sample Training and Production

A series of work sample situations which were both complex and easily adapted to a simulated production milieu was deemed important and necessary for the evaluation. The 14-piece Bendix R-2 Coaster Bicycle Brake was used with those clients whose hand functioning was only mildly impaired. The data base, task analysis procedures, and research on the R-2 Coaster Brake assembly task (Gold, 1972) provided baseline acquisition data on this task. However, given the nature of cerebral palsy, many clients being served by the project were unable to perform fine motor manipulations. Work sample tasks were developed in various employment areas; e.g., clerical, horticulture, child care, custodial, food service, library services, and assembly. Table 2-1 presents a complete listing of specific tasks in these areas.

Environmental Assessment

Data were collected on client decision making, readiness to begin work and reactions to the environment. In the course of the production activity, the client was asked to change tasks; this allowed project staff to assess the clients' reaction to supervisory instructions. The staff evaluator also observed the client's exercise of

TABLE 2-1

WORK SAMPLE TASKS

AREA	TASKS
Clerical	Sorting Filing Typing Stapling Collating Answering the phone Taking messages Computing data
Horticulture	Measuring Mixing soils Transplanting General plant care
Child Care	Crafts Storytelling Planning activities Supervising activities Serving snacks and Clean-up
Custodial	Dusting Mopping Vacuuming Cleaning sinks, windows Wiping tables
Food Service	Measuring Cooking Serving Clean-up Menu planning Food shopping
Library Services	Sorting Cataloging Processing books
Assembly	Sorting Working with tools Following diagrams Packaging

judgment and tolerance of frustration. The evaluators tried to consider as many of the variables which influence behavior which is related to independence and vocatonal adjustment as possible in order to plan an individual intervention program.

The client received positive, supportive reinforcement from the project staff members who believed that it was important for the clients to leave the assessment with a heightened confidence in their capabilities and a realistic awareness of their limitations. The entire assessment process culminated in an exit interview when the client talked informally with the evaluator about the total experience. Work motivation, vocational interests, and the client's reaction to the assessment process were discussed.

Staffing

After the completion of the client's assessment program, a "staffing" was held by the project staff members with the involved evaluators/consultants. The client's profile, vocational strengths and limitations were discussed as they related to the tentative goals developed by each evaluator for the client. Three factors were considered during the process of formulating goals:

1. Client's strengths, needs, and learning style as determined through the assessment: If a client was unable to remain attentive for any length of time, for example, a goal might involve efforts to increase his or her attention span. This might be formally stated as follows: Goal: client will increase his attention span; behavioral objective: client will work for 15 minutes without stopping; strategy: set adjustable timer for short intervals and instruct client to work without stopping until buzzer sounds; gradually increase time interval until desired span is achieved.
2. Client involvement in the process of formulating goals: The rationale was that the client should be an active participant in his/her habilitation process. It was considered important that the client feel successful while learning skills

and building client vocational interests following the assessments. When clients could not express their feelings verbally, the evaluator tried to ascertain this information from observations.

3. Potential independent living and vocational placements for the client: Such considerations are important in formulating goals and objectives. A survey in the client's home community of housing facilities, jobs available, and job descriptions can serve as a basis for realistic goals.

At the staffing, project evaluators used information from the client's diagnostic profile to formulate the Individual Habilitation Plan (IHP). Realistic and appropriate vocational options were explored, based upon the client's assessment data. The individual habilitation plan delineated goals and objectives to meet the individual client's physical, emotional, social, and vocational needs for a work adjustment program. After the staffing, project staff members prepared formal reports which incorporated their findings and recommendations.

Samples of all written reports; a preservice summary, vocational rehabilitation, and other disciplinary reports from a client's assessment, including individual habilitation plans, a work adjustment training report, and case closure reports are presented in Appendix 2-11.

Informing

Effective communicaton and cooperation among the various staff members involved with the client were essential to the success of the Vocational Technology Project. Information was usually given to the client as it developed during the course of his or her program.

Formal informing sessions were also held involving the client, the family, and the referral source periodically during the work adjustment training to discuss the findings and recommendations regarding the client's vocational program. Suggestions and comments from the client, family, and referral source were valuable to project staff as they planned appropriate techniques and strategies that could be used to individualize the client's habilitation program. Data collected regarding individual clients were released to community agencies only after specific Institute policies were followed in order to insure confidentiality of data and the clients' rights of privacy.

Information from the informing meetings was recorded on the Vocational Technology Informing Record Form (See Figures 2-3) and kept in the client's file. All client performance records and charts were stored in keeping with standard operating procedures of the Institute.

FIGURE 2-3

VOCATIONAL TECHNOLOGY INFORMING RECORD FORM

CLIENT'S NAME: _____

DATE OF INFORMING: _____

TYPE:

PARENT _____

SCHOOL _____

REFERRAL SOURCE _____

STAFF PRESENT: _____

OTHERS PRESENT: _____

PURPOSE:

CONCLUSIONS AND RECOMMENDATIONS:

WORK ADJUSTMENT TRAINING

The Vocational Technology for Cerebral Palsied Individuals Project included among its goals the design and dissemination of a model of work adjustment training for people with cerebral palsy; Figure 2-4 illustrates the model in outline form.

A client was referred for work adjustment services if all parties involved (the client, assessment team, and referral source) agreed that his or her work skills required development, modification, or enhancement. These services were also considered necessary before clients underwent specific vocational training since many clients referred to the project had little or no exposure to the world of work. A total of fourteen clients participated in work adjustment training; periods which ranged between six and fourteen weeks (see Table 2-2).

The work adjustment training program utilized a simulated high-demand work environment with vocational training tasks. Remedial training was provided when prerequisite skills required strengthening before actual vocational training could be carried out. The program also provided training at job sites outside the project's own workshop in order to give clients "hands-on" experiences in specific vocational tasks. Table 2-3 outlines training tasks and job site evaluation areas used during work adjustment training. Computer technology was another potential vocational training area explored for cerebral palsied persons. However, after careful research, this area was not pursued because available software did not appear to be appropriate to meet project training goals.

Because many severely handicapped cerebral palsied people have poor opinions about their abilities and hence low expectations of their vocational competencies, only positive reinforcements were used in the work environment. Training and clinical staff were instructed to avoid both verbal and non-verbal negative responses. This approach assured that the trainee's first encounter with complicated work would be positive, thus increasing the probability that the client would be receptive to training in more demanding tasks.

FIGURE 2-4

WORK ADJUSTMENT MODEL

Review Client Baseline Data And Goals Developed From Individual Habilitation Plan
Staff Selection Of Training Tasks
Establish Goals For Tasks
Modification Of Physical Environment
Development Of Training Methods And Strategies
Determine Criteria
Implementation Of Training Plan
Evaluation Of Training
Implementation Of Supervision Strategies And Approaches
Collection of Client Work Adjustment Data
Recommendations
Informing

TABLE 2-2

CLIENTS PARTICIPATING IN WORK ADJUSTMENT TRAINING

	SEX	AGE	WEEKS OF WAT	ANCILLARY SERVICES
1.	M	35	10	Group Counseling Individual Counseling Speech
2.	M	28	10	Individual Counseling Social Work
3.	M	26	12	Group Counseling Speech
4.	M	31	14	Group Counseling Individual Counseling Speech
5.	M	34	14	Group Counseling Individual Counseling Speech
6.	M	18	10	Group Counseling Individual Counseling Nutrition
7.	M	28	10	Group Counseling Occupational Therapy Physical Therapy Speech
8.	M	36	9	Individual Counseling Occupational Therapy Physical Therapy Speech
9.	M	21	6	Group Counseling
10.	F	34	8	Group Counseling Speech
11.	F	30	12	Nutrition Physical Therapy Group Counseling Individual Counseling
12.	M	25	10	Speech Physical Therapy
13.	F	22	10	Group Counseling Individual Counseling
14.	M	19	12	Nutrition Psychology Individual Counseling Group Counseling

TABLE 2-3

TRAINING TASKS AND AREAS

WORKSHOP	Accounting Ball Point Pen Assembly Bicycle Brake Assembly Chrysler Assembly Task Circuit Board Assembly Collating Filing Flashlight Assembly Janitorial Library Work Sample Proofreading Programmed Video Task Training Quality Control Sorting Tabulation of Service Orders Taking Messages Terminal Board Assembly Typing
REMEDIAL	Giving Directions Linear Measurements Using a Telephone Money Recognition Recognition of Basic Tools Telling Time Using a Calculator Budgeting Developing Appropriate Work Habits
JOB SITE EVALUATION TASKS	Child Care: Planning and Implementing Activities; Preparing Snack; Story Telling. Horticulture: Mixing Soil; Propagation; Repotting; Transplanting Seedings. Janitorial: Cleaning Sinks; Dusting; Vacuuming; Mopping Floors. Receptionist: Answering the Phone; Taking Messages. Library Services: Checking Out Books; Filing Books, Journals, Index Cards; Preparation of Books.

While error and faded supervision criteria were met for a work task, clients were assigned to the workshop where they would work independently on learned tasks. Clients were held responsible for observing the following rules:

1. Upon entering the workshop, hang up outer garments. (Depending on the client's motoric involvement, the client may be assisted by staff or co-worker.)
2. At 9:00 a.m., proceed immediately to the work station and commence working on an assigned task.
3. Produce the assigned task without error.
4. Attend to the task 100% of the time.
5. Switch tasks upon request.

6. Signal parts shortages or other problems by raising the hand or by signaling with a device.

7. At lunch time, proceed immediately to the lunch room, and after lunch return to the work station and resume working at the sound of the bell. When scheduled for supportive services (speech, individual or group counseling, dental services, etc.), proceed immediately to the appropriate clinic location and, following service, return immediately to the work station.

8. At 3:15 p.m., proceed immediately to the departure area to await transportation.

While in the workshop, clients were initially assigned to tasks within their physical capabilites; these tasks constituted prototype work to increase production rate, on-task behavior, and acceptance of supervision.

To ensure that all clients would be able to perform a job immediately upon entering the workshop, the following task, Programmable Video Task Training (PVTT) was designed by project staff. This training task required the client to follow a target across a television monitor display screen and subsequently to intercept the target with a cursor. The cursor was operated by a joy stick which could be moved with a minimal touch. A worksheet (see Figure 2-5) was used during this training to record dates of training, controls used, number of trials and times, and whether a client was on-task. All clients, regardless of physical or intellectual functioning, could successfully perform a task on the PVTT as soon as they entered the program. PVTT training also allowed on-task behavior to be one of the first skills that a client acquired.

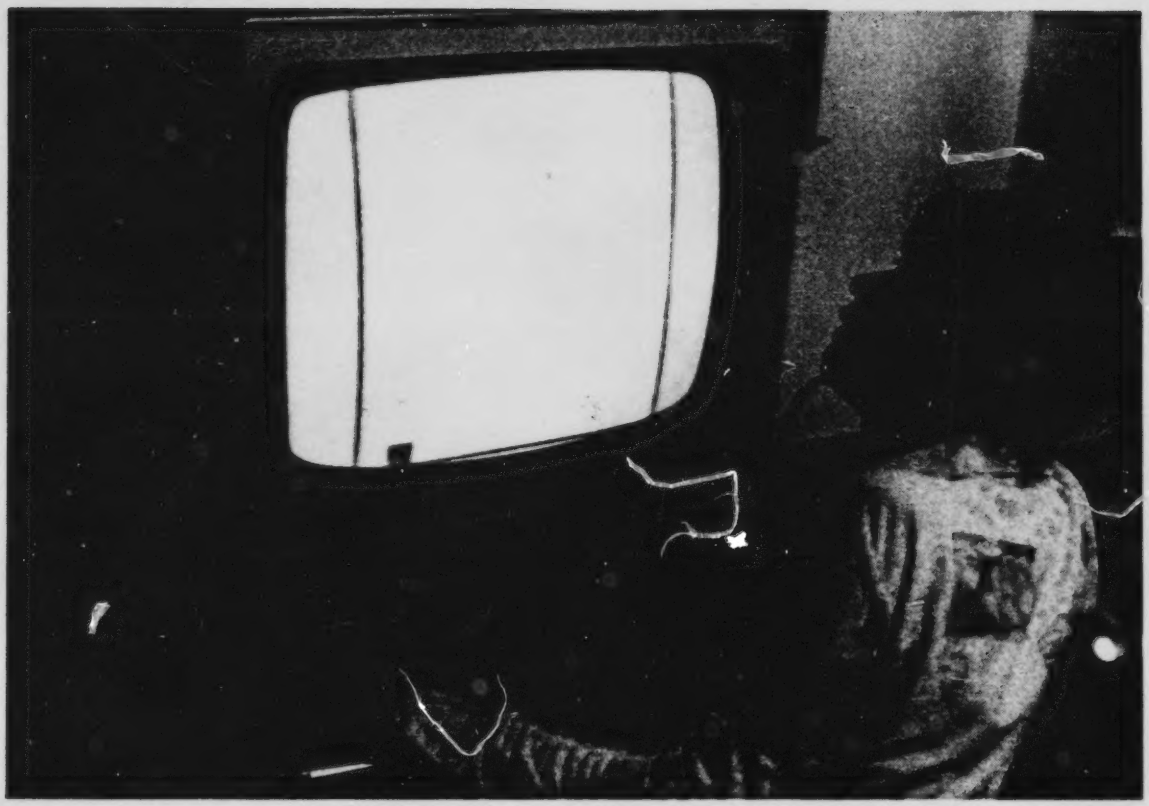
CLIENT M.S.
TRAINER B.P.

PROGRAMMABLE VIDEO TRAINING TASK
CLIENT DATA SHEET

DATE	Size	Speed	Motion	(TRIAL TIMES IN SECONDS) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	On-task
9-9	4	3	1	17	18	19	20	21	24	25	29	18	19	20	21	27	28	21	21	21	20	20	19	O
9-9	3	4	2	18	19	17	16	15	14	24	21	19	18	17	19	20	21	22						X
9-10	3	5	2	17	16	17	17	18	19	20	22	23	24	25	25	16	17	18	19	18	16	15	15	O
9-10	2	5	2	16	16	15	14	17	14	12	21	19	18	17	14	14	13							O
9-11	1	2	3	14	16	16	21	22	23	24	29	17	16	15	14	19	21	23	24	15	15	14	12	O

0-On-task
X-Off-task

FIGURE 2-5



Clients' behaviors were recorded to provide a basis for treatment decisions. Forms for recording on-task behavior, client production and specific treatment are included in the Vocational Technology for Cerebral Individuals Workshop Supervision Manual developed by project staff. This document, presented in Appendix 2-12, also outlines all procedures developed for the project workshop.

The following treatment strategies, employed in the work adjustment environment, are based on the project staff's previous clinical experiences in teaching complex behaviors to severely handicapped clients.

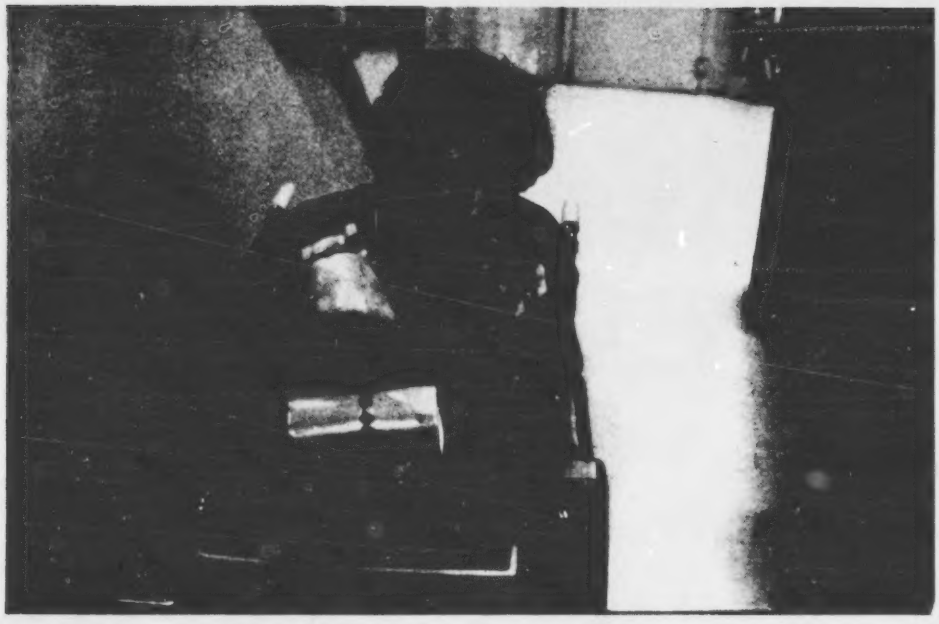
a. Modeling. Staff always modeled appropriate work behavior in the work adjustment environment. While the phenomenon of modeling has been discussed by various authorities, it has been documented (Lynch and Malian, 1977) that modeling is an effective strategy for altering behavior.

b. Positive reinforcement: Clients with low expectations of success do not respond well to the use of negatives in vocational training. The adjustment environment reinforced only on-task, high production behavior as mentioned above.

c. Other shaping procedures: In order to obtain high rates of production, low error rates, and compliant behavior, the staff employed the use of timers, contingency contacts, and goal setting.

d. Environmental engineering: The perceptual and motor involvement of cerebral palsied workers often required job site modifications or adaptations of equipment, which was recommended where appropriate by ISMRRD's occupational therapist or physical therapist. See Illustrations 2-1 and 2-2 for examples of modifications.

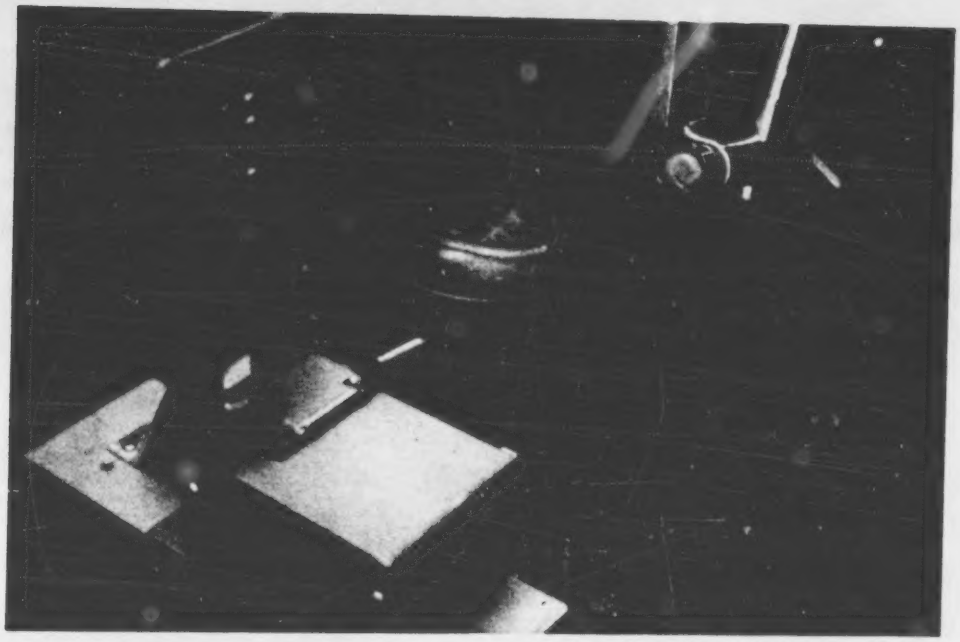
ILLUSTRATION 2-1



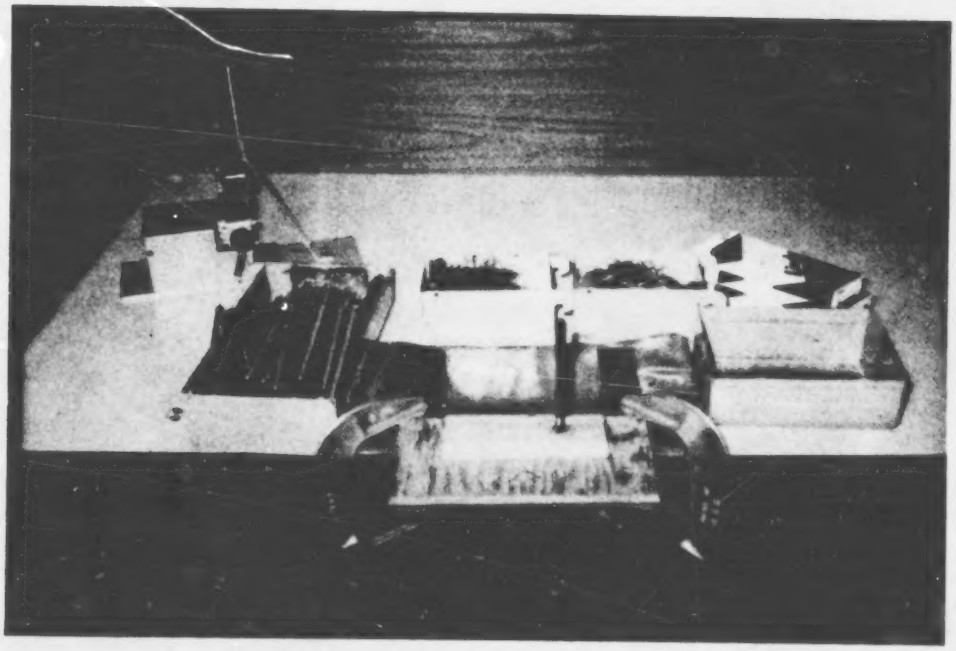
EQUIPMENT HOLDER ALLOWS CLIENT TO ACCESS WORK MATERIALS

CALCULATOR WITH GRID FACILITATES MORE DIRECTED FINE MOVEMENTS

ILLUSTRATION 2-2



FOOT BUZZER ENABLES NON-VERBAL EMPLOYEE TO SIGNAL SUPERVISOR



JIG STABILIZES COMPONENTS OF A WORK TASK

Clients were considered ready to receive placement assistance from the project's employment counselor when both their job-related behavior and on-task behavior compliance approached 100%, and when productivity stabilized (over a six-week period) at a minimum of 50% of that of non-handicapped worker. Of the clients in work adjustment training, 86% received placement assistance. The remaining 14% were referred to agencies in their home communities for extended work adjustment training after completing their program with our project.

Since many clients did not have the manual dexterity to achieve more than about half the productivity level of non-handicapped workers, most clients advanced to on-the-job training situations as a transition toward post-training work placement which had been individually designed for him/her. Refer to the placement section of this report for a more detailed discussion of this topic.

Ancillary Work Adjustment Services

Counseling- In addition to having experience in the simulated high-demand work environment described above, counseling services (individual and group) were made available to each program participant. Counseling was considered a vital part of the Vocational Technology Project, since the habiliation efforts of the project often produced major changes in the disabled person's life. As noted earlier, many severely cerebral palsied people have very low expectations of their social and vocational futures and were often fearful and reticent at the prospect of assuming a more responsible role in the community. In individual and group sessions, trainees were afforded an opportunity to express their concerns.

Initial counseling session goals for individual clients were determined by the recommendations developed for the clients' IHP. Additional goals were then developed as the Vocational Technology staff became aware of particular concerns of clients. Many clients in the project presented numerous and complex psychological and social problems, the counseling groups were therefore called upon to deal with a

wide range of concerns. For example, many clients were extremely naive about the kinds of vocational alternatives available to them upon the completion of the program. The staff provided the clients with a substantial amount of vocational information and held group discussions which dealt specifically with the world of work and the opportunities available to cerebral palsied people. Many clients also had unrealistic vocational goals upon entering the project. The rehabilitation counselor often spent a considerable amount of time outlining the kinds of skills and qualifications required for various job positions. In order to help clients develop realistic goals, the counselor frequently assisted them and their families to better understand the meaning of the person's disability and its relationship to vocational planning.

Counseling also addressed the development and improvement of work, social, and interpersonal skills (including sexual attitudes and behavior). Another issue was the development of leisure-time skills. Upon entering the project, many clients had been isolated by the nature of their disability and had no prior hobbies or interests. They were encouraged to develop hobbies and outside interests, since a handicapped individual who resides, works, and recreates in a community is often more easily integrated into that community.

Other Disciplines- Recommendations for other therapies were based on data generated during the client's two week assessment. Those therapies were scheduled into the work adjustment program. Ancillary services, which were available to all clients served by the project, included audiology, dentistry, nutrition, occupational therapy, physical therapy, psychology, social work, and speech pathology. Table 2-2 lists various ancillary services provided for project clients during work adjustment.

RESIDENTIAL PROGRAM

Residential arrangements were made available for clients from outside of the Ann Arbor area or for those who desired an independent living experience during their programming at the University's South Quadrangle Dormitory. Each client had his/her own room or shared a room with another client, and the residential attendant resided in an adjoining room. University of Michigan students with experience in working with the handicapped served as residential program attendant aides.

Attendants received in-service training from ISMRRD staff before working in the program. Residential program staff were also guided by the Residential Attendant Manual, an orientation and resource publication (See Appendix 2-13). Although residential attendants were responsible primarily for providing program support, guidance, and physical care as required, the residential program's main emphasis was to promote client independence.

An individual habilitation plan, was prepared for each residential program client that emphasized activities which involved social and personal independence. These included recreational and leisure-time activities as shopping, bowling, concerts, movies, and sporting events. Since many clients had limited experiences in negotiating the community independently, they were encouraged to participate in these activities. Transportation for clients during their programming was arranged through the Ann Arbor Transit Authority, Dial-A-Ride Program. Clients were encouraged to make their own arrangements to and from work each day and to plan their own recreational activities during non-work hours. As clients' training programs progressed, they were encouraged to take more initiative in planning and implementing their own activities. The attendants' role as facilitator was gradually reduced as clients became more skilled and confident in their own decision making skills.

PLACEMENT ASSISTANCE

Job procurement and placement was provided for all clients that participated in work adjustment training. The project's placement coordinator worked closely with the client, the referral source, and other project staff to locate and procure a position that suited the client's interests and abilities. Depending upon their capabilities, clients were placed in any number of work settings: e.g., sheltered workshop, a work experience position, homebound employment, or directly into competitive industry. In some cases, the staff also assisted a client to change residence to permit access to vocational training and employment opportunities. Appendix 2-14 summarizes placement assistance received by clients during the project. Regardless of the type of placement, the ultimate goal was to help the trainee to achieve his or her highest possible level of vocational-social functioning in a competitive or sheltered environment. As in the assessment and work adjustment

phrases, a model (See Figure 2-6) was developed for placement assistance.

The placement coordinator worked with the client during work adjustment training to identify an appropriate work site. When a job was identified at the selected site, a task-analysis was performed and the placement coordinator began the necessary job adaptations. An example of a job task-analysis, including the content and procedures for training, is shown in Appendix 2-15. The client was also evaluated at the job site before actual placement; this enabled project staff to make any further modifications that appeared to be necessary.

Once a client left the project's work adjustment training program and was placed on a job site, an on-the-job trainer from the project provided daily skill and work behavior training utilizing the strategies formulated during the work adjustment program. As soon as possible, supervision by the trainer generally diminished and the employers' supervisors were instructed to continue using appropriate training techniques.

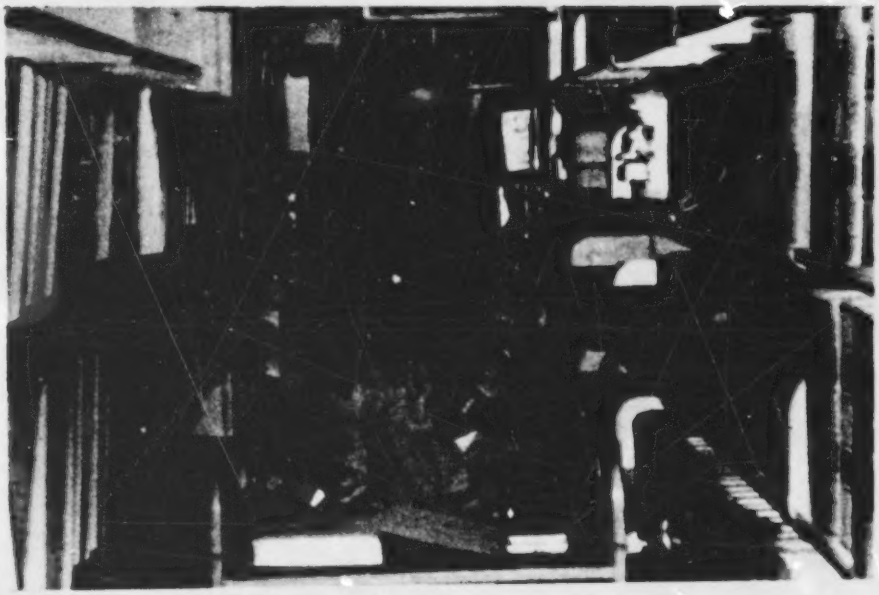
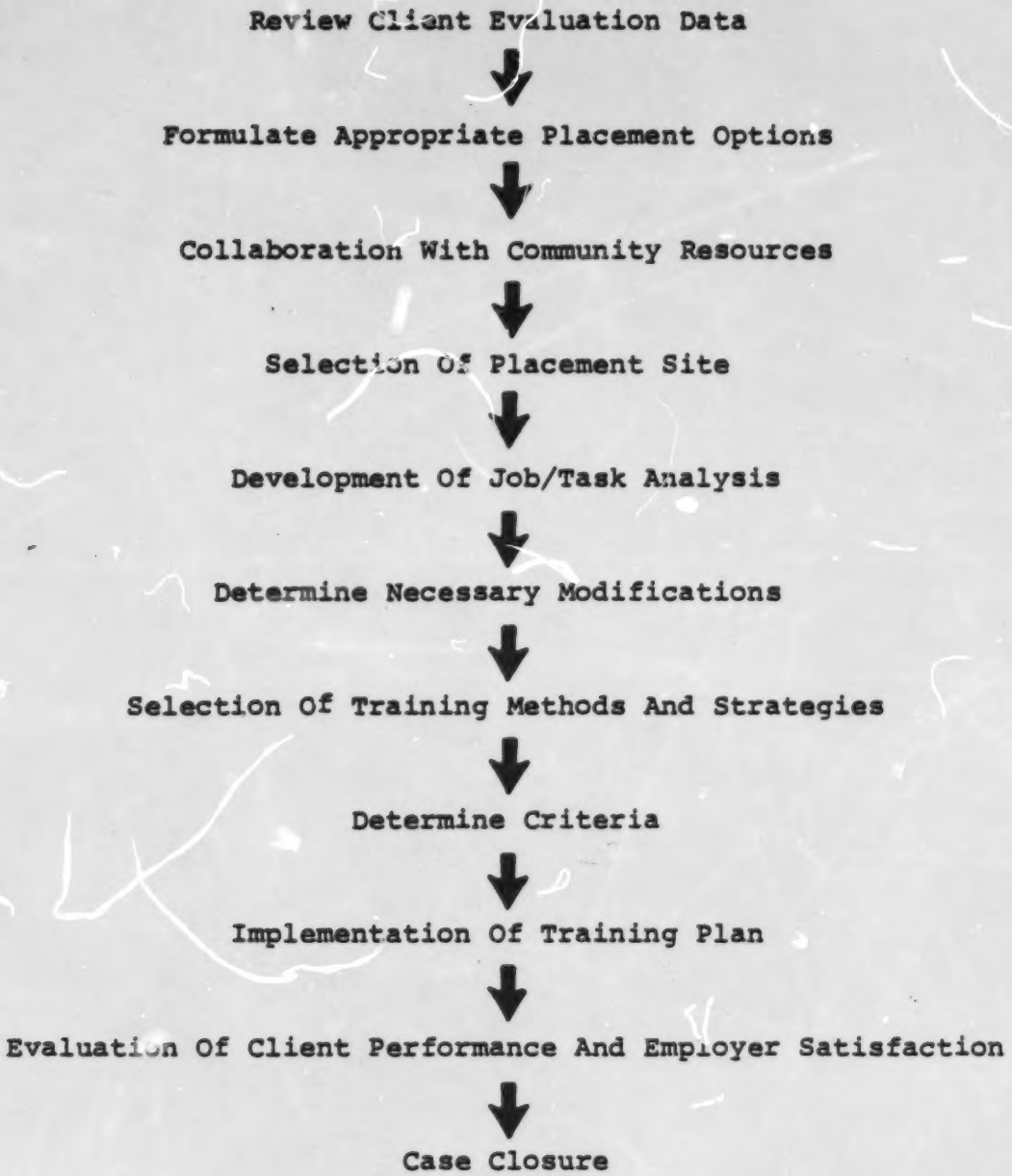
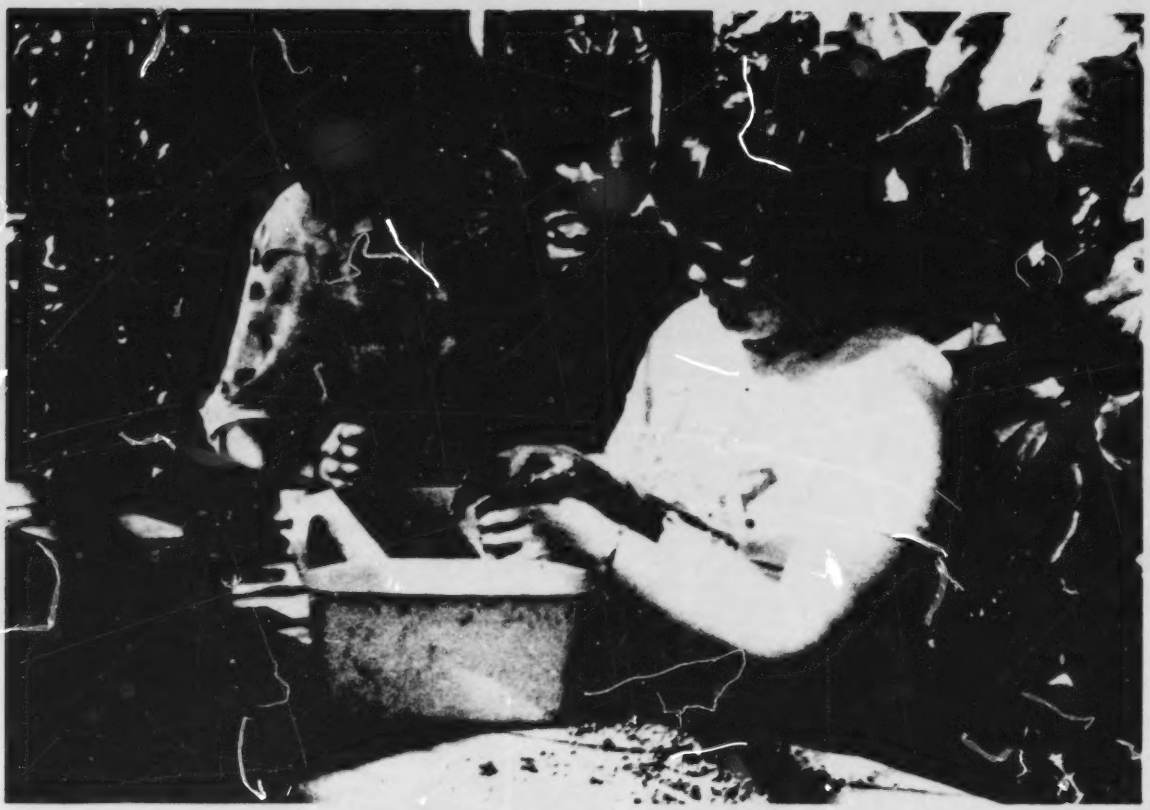


FIGURE 2-6

PLACEMENT ASSISTANCE MODEL


Review Client Evaluation Data
Formulate Appropriate Placement Options
Collaboration With Community Resources
Selection Of Placement Site
Development Of Job/Task Analysis
Determine Necessary Modifications
Selection Of Training Methods And Strategies
Determine Criteria
Implementation Of Training Plan
Evaluation Of Client Performance And Employer Satisfaction
Case Closure



One critical factor in all placement activities was found to be the follow-up process which began once a client had learned to perform the required job duties. Some employers who have used handicapped employment programs in the past felt that although there was a consulting staff available to them at the beginning to alleviate client problems on the job, contact was not continuous or satisfactory after the client had worked there for a period. To alleviate this problem, the proje[illegible]'s follow-up program utilized three monthly evaluation reports after training w[illegible] completed (the time at which a client had become totally independent on the job). These evaluations involved a simple checklist (see Appendix 2-16) and required

minimum amount of employer time to complete. Project staff members were also available for site visits and to hold consultations with employers during this period to offer technical assistance as well as to assist non-handicaped co-workers in dealing realistically with the client. At the conclusion, a case closure final report was prepared and was forwarded to the client and the sponsoring agency. An example is included as part of Appendix 2-11.

STAFF DEVELOPMENT AND IN-SERVICE TRAINING

Because of the complexity of working with a severely disabled population, staff development and training were strongly emphasized throughout the duration of the project. Weekly staff meetings were scheduled for three reasons: 1) to ensure communication about modification of the individual habilitation plans and other client-related decision-making, 2) to promote collaborative and consensual program planning and decision-making, and 3) to provide an arena for informal and formal training of staff.

Professional In-Service Training- Each new professional staff member upon joining the project, received a comprehensive orientation from the project director regarding project philosophy, organization, and individual job responsibilities and duties. Subsequent role negotiation and informal sharing of knowledge and duties occurred among the professional staff throughout the Project. Formal training in CPR, IHP development, use of the PVTT, task analysis procedures, and behavior technology took place at staff meetings and specially planned events.

Individual staff members attended a variety of workshops or conferences expressly for the purpose of obtaining information which would be valuable to serving client needs. Appendix 2-17 presents a comprehensive list of all conferences or workshops attended by staff during the project.

Paraprofessional In-Service Training- Considerable time was taken to prepare

paraprofessional attendant staff members to assume their responsibility for the 24 hour per day assistance and programming of project clients. Attendant staff training included all project-essential information, including CPR, first aid, emergency procedures, project philosophy, leisure activity choices, record keeping, financial procedures, South Quadrangle orientation and procedures, meal procedures, and Dial-A-Ride procedures. Staff training materials and outlines used during the project are presented in Appendix 2-18. Training also took place informally at the weekly meetings where staff was encouraged to read the project technical manuals in order to familiarize themselves with behavior technology and other needed information. Examples of these manuals are presented in Appendices 2-12 and 2-13.

ACCOMPLISHMENTS

As a result of the activities undertaken to solicit referrals, information about the Vocational Technology Project reached families with cerebral palsied members as well as rehabilitation professionals throughout Michigan and surrounding states. While it was seldom cost effective for more distant agencies to refer clients to the project, the Vocational Technology staff served as consultants to counselors and other social service personnel to generate ideas for vocational program planning that could be implemented in the client's community. By sharing the project's experiences, rehabilitation personnel and special education teachers were able to broaden their perspective and become familiar with vocational areas in which individuals with cerebral palsy could be successfully trained.

A videotape was made which depicted the major components of the Vocational Technology Project; loan copies are available from the Michigan Media Library. A brochure was developed which provides information on obtaining this videotape (See Appendix 2-19).

Twenty-seven clients received a multidisciplinary vocational assessment;

fourteen of those participated in an individualized work adjustment training program during the project. A specialized training task, Programmable Video Task Training (PVTT) was specially developed as a failure-free learning task which would enable all clients to master a workshop task regardless of the severity of disability upon entering the workshop. Individualized work samples were designed for client training. Specialized training strategies were developed, and the Workshop Supervision Manual was written by project staff to disseminate and apply these strategies. Clients participated in a variety of ancillary services as part of their programming including counseling, speech, social work, nutrition, occupational therapy, phsycial therapy, and psychology.

The project's multidisciplinary approach to evaluation and treatment has afforded clients the opportunity for an overall assessment of their strengths as well as limitations. Although people disabled by cerebral palsy may have recognized limitations and barriers for employment, they have not had the chance to experience vocational activities and therefore have a limited view of how their capabilities might actually be utilized for achieving a vocational goal.

Project staff developed a Functional Change Scale for use with clients to assess their pre-vocational skill levels before and after programming. Gains were documented and placed in the client's records.

The Sensory Motor Assessment Form was developed by the project's physical therapist and occupational therapist to provide a comprehensive outline for the evaluation of the client's strengths and limitations in this area. When appropriate, an extensive individualized physical therapy exercise program was developed to improve the client's strength and motor skills. Four clients had such remedial programs developed for them. Appendix 2-11 includes a sample individualized home exercise program developed for a Project client by the staff physical therapist.

A total of 18 clients participated in the project's residential program. They

received programming in the areas of independent living as well as social and recreational areas. These people were also offered the opportunity to experience independent living in the community (e.g., securing their own transportation, arranging evening activities, going out for meals). A Residential Attendant Manual was developed by project staff for residential attendants working in the program.

Twelve clients in work adjustment training received placement assistance. In exploring placement options, a comprehensive list was developed of all rehabilitation facilities, sheltered workshops (including work activity centers), and specialized rehabilitation facilities in the state of Michigan (See Appendix 2-20). Project staff compiled a list of homebound employment areas (see Appendix 2-21) and secured residential placements for clients. An annotated bibliography regarding job placement information for a severely disabled population was also developed (See Appendix 2-22).

In the area of staff development and inservice training, project personnel attended 26 professional level workshops and conferences. See Appendix 2-17. In addition, the project's paraprofessional staff received, on an as-needed basis, in-service training programs continuously throughout the life of the project.

OBJECTIVE 2: To develop and continue interagency relationships.

AGENCY CONTACTS

The project staff worked continually on behalf of the clients to link resources and support systems available through state and local offices of the Michigan Rehabilitation Services, state and local affiliates of United Cerebral Palsy, and other appropriate community agencies. Considerable staff time was spent in agency contact through all of the service delivery points, including project-public relations

and presentations, case-finding and referral follow-up, intake activities, client and agency informing, residential programming, on-the-job training, job procurement and placement activities, and case closure informing.

Numerous contacts were made to coordinate and integrate the efforts of personnel in both special education and rehabilitation. This interaction was facilitated by the Michigan Interagency Delivery System for Vocational Education and Related Services for the Handicapped. On the basis of experience gained during the project, the staff recognized not only the importance, but the immediate need for developing appropriate staff training materials and other informational programs to meet the challenges of working with cerebral palsy individuals to facilitate their vocational development. To address these needs, meetings were held with Mr. Basal Antenucci, the Director of the Michigan Rehabilitation Services and Mr. Murray Battan, Director of Michigan Special Education to share project activites and experience and to seek suggestions regarding future programming. As a result of these meetings, the project staff developed two additional project proposals. These were prepared and submitted in 1981, but were not funded. Details of these proposals are discussed under Objective 6. The emphasis of these proposals was to continue to promote a productive interaction between special education, vocational educaton, and vocational rehabilitation.

ACCOMPLISHMENTS

There was a total of 188 agencies contacted by staff during the project. The majority of these pertained to general project information, consultation as to the appropriateness of present programming and placement of cerebral palsied people in the community, and the development and implementation of individual habilitation plans for project clients. A full listing of these agency contacts is presented in Appendix 2-23.

Two proposals were submitted but not funded. Areas identified for future program development included a trainees manual for special education teachers and technical assistance for personnel working with cerebral palsied students.

OBJECTIVE 3: To identify services essential to vocational adjustment of project clients.

SERVICES PROVIDED

During the project 35 clients were accepted for vocational assessment. Of these, 27 participated in the program. Fourteen (52%) of these program participants were involved in the work adjustment program, and 12 of these 14, (86%) received placement assistance. Table 2-4 lists services provided under vocational assessment, work adjustment training, and placement.

Every client underwent an individualized program involving assessment of both vocational and prevocational skills. A Functional Change Scale was developed to measure client performance before and after program training. The staff believed that physical therapy and occupational therapy evaluations were essential in order to determine a client's vocational potential and a comprehensive form was developed. When scheduling permitted, every client was seen by at least three disciplines, occupational therapy, physical therapy, and vocational rehabilitation. Depending upon the clients' background information, additional disciplines might have been recommended also. Appendix 2-6 and Table 2-2 lists disciplinary evaluations scheduled in clients' vocational assessment and work adjustment programs.

INDIVIDUAL HABILITATION PLAN

The findings and recommendations from the assessment served as a basis for the formulation of goals for the client's IHP. Appendix 2-11 presents a sample of

SERVICES PROVIDED

VOCATIONAL ASSESSMENT

Individual Therapy Assessments

- . Vocational Rehabilitation
- . Physical Medicine and Rehabilitation
- . Physical Therapy
- . Occupational Therapy
- . Speech Therapy
- . Dentistry
- . Social Work
- . Audiology
- . Psychology

Baseline Data

- . Sensory and Motor
- . Verbal Cognitive
- . Functional Academics
- . Adaptive Behavior (Community and Personal)

Work Behaviors

Vocational Interest, Motivation and Sophistication Inventories

Vocational Exploration

Situational Assessment

Work Sampling

- .Task Acquisitions

Simulated Work

- . Independent Production Data

WORK ADJUSTMENT TRAINING

Training Techniques

- . Chaining
- . Verbal Cues
- . Reinforcement
- . Fading
- . Priming
- . Modeling

Disciplinary Interventions

- . Occupational Therapy
- . Vocational Rehabilitation
- . Physical Medicine and Rehabilitation
- . Physical Therapy
- . Speech Therapy
- . Dentistry
- . Social Work
- . Audiology
- . Psychology

Individual Production Records On Individual Clients

- . Supervisory Techniques
- . Goal Setting
- . Incentive Wages
- . Contingency Contracting

Personal Counseling (Social and Interpersonal)

Work Behaviors

Skill Acquisition

Vocational Counseling

- . Job Exploration
- . Job Seeking Skills

On-the-Job Evaluation

PLACEMENT ASSISTANCE

Employer Contacts

- . Self-Awareness Training

Development of Work Sites

- . Sheltered Workshop
- . Home Employment
- . Work Experience
- . Competitive Employment

On-the-Job Training Strategies

- . 1:1 Training
- . On-Site Modification

Rehabilitation Engineering

- . Specialized Equipment

Follow-Up

- . On Site Visits
- . Monthly Evaluations

RESIDENTIAL PROGRAM

Independent Living Skills

- . Self-care
- . Money Management
- . Mobility Training

Social Recreational Skills

- . Awareness of Community Resources
- . Participation in Community Events

TABLE 2-4

this plan. Goals were generally developed in the areas of work skills, work adjustment, job placement, independent living, social skills, and recreation. These goals were accompanied by operational objectives which were stated in behavioral terms and designed to measure client progress. The IHP served as the basis for defining the services essential during work adjustment and placement for the vocational adjustment of the client.

ACCOMPLISHMENTS

Of the 27 clients in assessment, 11 (41%) had never had exposure to or had been involved in a prior vocational training program. As a result of the assessment, these people had the opportunity to develop and pursue career opportunities that they had not realized as being available or feasible.

All clients received multidisciplinary evaluations (three to eight), and had prepared for him or her an individual habilitation plan delineating goals and objectives for the development of vocational potential. This plan was the basis for the implementation of programming for the client.

Fourteen (52%) of the 27 clients in assessment participated in the project's work adjustment program. This program emphasized an individualized, prescriptive approach in work skill training, production and work adjustment, and related behaviors. In addition to working in a simulated work environment, the clients were involved in individual therapies on an as-needed basis including independent living skill training and counseling (individual and group).

A total of 12 (86%) of the clients in work adjustment training received placement assistance. Services included the identification of an appropriate placement, on-site modifications, and on-the-job follow-up assistance.

OBJECTIVE 4: To explore the unique needs of project clients in the area of job development, post employment services, and other services designed to enhance the independent functioning of the client in the community.

PROGRAM EVALUATION

To help assess the effectiveness of the Vocational Technology Project, an evaluation form was sent to former project clients and their families, agency referral sources, and other personnel directly involved with the clients' habilitation program. A similar form was sent to client's employers. Of the 85 evaluation forms sent out, 45 (53%) were completed and returned to the project. The consensus of the evaluations from the clients and referral sources was that the overall program was beneficial for the participants (4 out of a possible 5 points). Overall ratings of the assessment part of the program suggest that the resulting evaluations were valuable in determining client's vocational potential and for structuring community training programs.

Comments from agencies included the following: "The staff was very knowledgeable and willing to do the best job possible. Very professional staff--very valuable experience for this client." "The evaluation provided specific recommendations in all areas. It provided order to what appeared to be an impossible case." A major weakness noted, "... there are no community links for employment."

The work adjustment component was also well received, obtaining a score of 4 on a scale of 1 to 5. Participants said that they felt that the work experience was a very positive one and that the program was very individualized implementing goals and objectives developed in the client's IHP. Clients especially appreciated the adaptive devices that were designed to facilitate their vocational competencies.

The Residential Program was rated 3, overall. While it had limitations which will be addressed in Chapter 3 of this report, clients' families and referral agencies

felt that this program provided clients with a unique opportunity to become independent and to develop and practice their own decision making skills.

Placement assistance was rated 3.93. Although some individuals were disappointed with the scarcity of placement options in their home communities, referral sources expressed appreciation for the amount of research, time, and efforts expended by the project staff in providing placement assistance.

In regard to on-the-job placement, the project's follow-up services were also assessed and the overall rating was excellent (4 on a scale of 1 to 5). Especially appreciated was the project's employment coordinator's presence and involvement at the work site when the client began the on-the-job training; as the client became more comfortable handling the demands of the job, this supervision gradually diminished. Job site modifications were made after consultation between project and work site staff. Whenever possible, ready made equipment was used to facilitate the client's tasks at the work site. The project staff also consulted with the Rehabilitation Engineering personnel at the University of Michigan for additional ideas and ways to handle problem areas.

Follow-up services were provided periodically to give support and to ensure that any developing problems received attention. Project staff members occasionally provided additional training when follow-up services determined it was necessary.

Appendix 2-24 presents project evaluation forms and other related information.

FACTORS RELATED TO PLACEMENT

The project staff identified the following factors as promoting successful job placement for cerebral palsied people:

1. On the job training to provide clients with initial support and exact training in job skills;
2. Community work opportunities to allow the client to experience an actual work setting;

3. Facilitative aids and adaptive equipment such as typewriter keyboad shield, doorknob extender, and urinal bag;
4. Follow-up services to determine if additional training is required;
5. Positive worker traits such as strong motivation to work, lack of interferring work behaviors, willingness to relate to authority and to accept supervision, and good social interpersonal skills.

The following factors were identified as mitigating against successful placement:

1. Client's non-independence in self care skills;
2. Limited work experience;
3. Lack of appropriate work training opportunites within the client's community;
4. High unemployment rate in Michigan;
5. Lack of sheltered workshops which provide work commensurate with the physical and mental capabilities of the cerebral palsied;
6. A paucity of residential facilities which support the needs of employment-oriented clients;
7. Inadequate public transportation for severely handicapped individuals in small or rural communities;
8. Lack of support services in many communities that focus on improvment of the quality of life of developmentally disabled adults;
9. Unrealistic vocational goals;
10. Limited client physical stamina and resulting inability to perform through a normal working day.

ACCOMPLISHMENTS

A total of 85 self administered/self returned questionnaires were sent out to clients, their families, and referral agencies asking them to assess their satisfaction with the project. A response rate of 53% was achieved. On an arbitrary scale of 1

to 5, an overall rating of 4 was obtained, indicating a satisfaction level of 80% by clients and referral agencies. Factors which promote or hinder job placement for cerebral palsied peoples were identified and documented.

OBJECTIVE 5: Dissemination of the Vocational Technology's model of task analysis, assessment, adjustment, training, placement, and follow-up of adolescent and adult clients with cerebral palsy.

GENERAL PUBLIC RELATIONS

A project brochure and information profile, radio announcements and press releases were prepared by project staff and used for two purposes: (1) to obtain referrals for the project and (2) to describe the project and the needs of the cerebral palsied to the general public. These materials are presented in Appendix 2-1.

Project Videotape

A videotape was written by project staff and produced by University of Michigan Media Services. The videotape was utilized to publicize and describe the project among professionals and the general public.

Project Presentations

Project presentations were of three types: (1) general presentations by project staff to each prospective client, families, or interested colleagues at the Institute; (2) presentations given to agency personnel in their facilities; and (3) formal and informal presentations at national meetings. Conferences and workshops at which project information was disseminated are listed in Table 2-5.

STUDENT TRAINING

Information and training on cerebral palsy was presented by project staff to

TABLE 2-5

PROJECT PRESENTATIONS AT WORKSHOPS AND CONFERENCES

American Association of Mental Deficiency Meeting
Miami, Florida
June, 1979

Secondary Special Education Teacher Conference
Michigan Department of Education
Lansing, Michigan
July, 1980

Michigan Rehabilitation Association Meeting
Grand Rapids, Michigan
October, 1980

American Academy of Cerebral Palsy Regional Meeting
Lake Buena Vista, Florida
March, 1981

American Association of Mental Deficiency Meeting
Detroit, Michigan
May, 1981

Monroe Community College Parent Spring Conference
Monroe, Michigan
May, 1981

graduate students affiliated with the Institute. Appendix 2-25 outlines the objectives which underlie the project's student training program.

When appropriate, students participated in the evaluation and treatment phases of the project under the direction of Institute staff; this afforded them opportunities to broaden their experiential base in working with a cerebral palsied population.

PUBLICATIONS

In addition to presentations and the final project report, activities generated by the project staff have been disseminated through various publications. The Workshop Supervision Manual and the Residential Attendant Manual were two technical documents written by project staff. One article entitled "A Service Delivery System for Cerebral Palsied Individuals" is currently under consideration by a professional journal.

TRAINING WORKSHOP AND FOLLOW-UP SERVICES

In order to strengthen the project's information dissemination efforts, five regional training workshops were approved during Year III to be carried out at the end of the project year and through the no-cost extension period granted by the sponsor. The purposes of the regional training workshops were to provide an overview of the service delivery system developed for individuals with cerebral palsy and to outline strategies and technologies used in the project. Workshop participants included personnel from Michigan Rehabilitation Services, United Cerebral Palsy, Associations of Retarded Citizens, intermediate school districts, and private agencies which provide services for the cerebral palsied. The follow-up services addressed workshop participants, specific agency needs and problems.

ACCOMPLISHMENTS

A project brochure and profile, radio announcements, and press releases were developed and disseminated to the general public. A videotape was prepared and produced, and is available upon requests on a loan basis. Project activities were

disseminated at six state or national professional meetings. Nineteen graduate students in human services (representing the disciplines of speech and language, occupational therapy, physical therapy, social work, psychology, nutrition, special education, and psychiatry) provided evaluation and treatment for project clients. Two technical documents, Workshop Supervision and a Residential Attendant Manual were written and are available in the Training Resource Center collection at ISMRRD.

Ninety-three persons (representing 42 agencies concerned with independent living and/or vocational training of the cerebral palsied) participated in five regional workshops; of those, 35 requested and received further consultation and additional information provided by project staff. Workshops were evaluated and received an overall rating of 18.9 out of a possible 25 points. Appendix 2-26 presents materials and data relating to these five regional workshops.

OBJECTIVE 6: To Explore the potential for project refunding or "spin-off" design

REFUNDING PROPOSALS

Project staff have diligently explored the potential for further funding for continued programming for cerebral palsied people as this present project has generated a high degree of professional interest. As a result of such efforts, two proposals were developed, reviewed by internal staff and by outside authorities, and submitted with the endorsement of the state agencies in special education and rehabilitation. These proposals were:

1. Serving Cerebral Palsied Students in Special Education: Development of a Trainer's Manual; submitted to the Office of Special Education, Program Development Branch, U.S. Department of Education (2/17/81).

2. Technical Assistance for School Personnel who Provide Vocational Assessment and Intervention for the Clients with Cerebral Palsy; submitted to the Rehabilitative Services Administration, U.S. Department of Education (6/5/81).

ACCOMPLISHMENTS

Neither of the proposals cited above were funded. The study and effort involved in their preparation; however, have provided both a framework and direction for further efforts to secure funding in the area of vocational programming for a cerebral palsied population.

OBJECTIVE 7: To generate, produce, and publicize a final project report to document and more widely disseminate project findings

FINAL PROJECT REPORT

This final project report documents various activities undertaken by project staff towards the achievement of goals and objectives of this grant. A service delivery model for multiply-handicapped adults with cerebral palsy has been developed and field tested, and a quantitative data base regarding the effectiveness of the model has been provided.

ACCOMPLISHMENTS

A primary purpose of this final report was to provide an additional vehicle for dissemination. This report will be forwarded not only to the federal sponsors, but to national clearinghouses and agency personnel working with cerebral palsied people.

Copies of this report will be available from the Educational Resource Informational Clearinghouse (ERIC), the National Clearing House of Rehabilitation Training Materials, and the National Rehabilitation Information Center. Reports

were also provided to University Affiliated Programs, United Cerebral Palsy of Michigan and New York, Michigan Rehabilitation Services, the Michigan Department of Special Education, and selected rehabilitation personnel who have been working in the area of vocational rehabilitation.

CHAPTER 3

CONCLUSIONS

PROJECT SUMMARY

A three year research and demonstration grant was received from Rehabilitation Services Administration to develop a model of vocational services for individuals with cerebral palsy. Twenty-seven individuals participated in the model service delivery system which included assessment, work adjustment training, and placement assistance. The development and application of specialized technologies (adaptive, behavior, and engineering) were used within the model to further the vocational development and independence of cerebral palsied individuals.

Pertinent evaluation data was collected. Project methodology and results were disseminated to service providers in five regional workshops throughout the state of Michigan.

POSITIVE AND NEGATIVE PROGRAMMATIC FACTORS

The following section summarizes positive and negative programmatic factors relating to each project objective.

OBJECTIVE 1: To demonstrate a service delivery model of vocational assessment, work adjustment training, and placement for moderately and severely disabled individuals with cerebral palsy.

Many positive factors emerged from activities related to Objective 1. As a result of publicizing the project model and services to generate referrals, there was an increase in the number of individuals who were not only interested in the program, but also requested information pertaining to vocational programming and

employment options for cerebral palsied adolescents and adults.

An important contribution of the project was the utilization of an prescriptive approach in all service components of the model developed. During evaluation, factors assessed included strengths and limitations for future vocational training, intervention services, and the identification of possible technologies to be utilized in a client's habilitation program.

Clients were also involved in all decision making aspects of their program and received consistent feedback from project staff. As in the assessment phase, work adjustment training and placement assistance were also individualized with the application of specialized strategies geared toward cerebral palsied individuals.

The residential program offered clients an opportunity to participate in an independent living situation. Clients received programming in activities of daily living and social/vocational/leisure skills which enhanced their vocational development.

Negative factors were also recognized during development and implementation of the service delivery model. Some clients were emotionally dependent on their families and had an ambivalent self-concept in regards to themselves and the world of work. Other constraints identified as being barriers to program participation were clients' unstable health problems, lack of physical stamina, and unavailability of accessible transportation to the program.

The assessment instruments presently available were not adequate to meet the needs of cerebral palsied clients in the project. Many of the clients were environmentally deprived and had not only intellectual, but sensori-motor limitations as well.

A ten week work adjustment program was recognized as being an insufficient amount of time to develop and strengthen work skills. This was especially true since many individuals had little or no prior exposure to vocational training programs or to the work environment.

The devastating economic climate in Michigan seriously curtailed the development of training sites and potential employment options of project clients. The lack of accessible transportation in a client's home community was also another barrier for employment.

OBJECTIVE 2. To develop and continue interagency relationships.

Contact was made in the first year of the project with personnnel in rehabilitation, social services, and schools to develop interagency relationships to solicit referrals. During the three years project staff served to coordinate client services with these agencies.

While interagency relationships were developed with service personnel to refer individuals, earlier contact with agency directors to generate support for the program would have established more efficient procedures for directing referrals to the project.

OBJECTIVE 3. To identify services essential to vocational adjustment of project clients.

Services essential to the vocational adjustment of project clients were identified by the staff and referral sources prior to clients entering the program. Multidisciplinary services were available for assessment and training of vocational and independent living skills, and for many of the clients this was their opportunity to participate in a comprehensive program. Individual habilitation plans were developed in each discipline which outlined goals and objectives and the procedures to facilitate change.

Negative programmatic factors included insufficient contact with community

employers to establish training sites which would have facilitated more opportunities for integrating clients into the working environment. Another problem was that once a client was working on the job, follow-up services were limited to a three month period.

OBJECTIVE 4. To explore the unique needs of project clients in the area of job development, post-employment services, and other services designed to enhance the independent functioning of the client in the community.

A positive aspect of placement process was that strategies for placement were formulated early in a client's program. Sufficient funds were allocated for these activities and a full time placement coordinator was assigned to this phase of the program.

Failure to tie in adequately with existing placement services was a major constraint in this area as policies were not firmly established as to the role of the referring agency for placement. The depressing economic climate in Michigan also severely limited community options for training and employment.

OBJECTIVE 5. Dissemination of the Vocational Technology Project's model of task analysis, assessment, work adjustment, training, placement, and follow-up of adolescent and adult clients with cerebral palsy.

The project had a strong dissemination component which included printed materials, videotapes, regional training workshops, presentations at national conferences, and articles submitted to professional journals.

A major weakness was that the majority of dissemination activities did not begin until the latter part of Year III leaving insufficient time to follow through on

requested presentations and case consultations.

OBJECTIVE 6. To explore the potential for project refunding or "spin-off" design.

Two proposals were submitted during Year III in an effort to further develop training materials and specialized strategies in working with cerebral palsied individuals. Both proposals were not funded.

OBJECTIVE 7. To generate, produce, and publicize a final report to document and more widely disseminate the project findings.

Activities and accomplishments of the Vocational Technology Project according to its objectives were documented in this report. Project conclusions were also incorporated, and the final report was disseminated on a local, state, and national level.

One major drawback of the final project report is that it emphasized Year III activities. For a comprehensive review of all project activities, the reader should refer back to the annual reports and continuation proposals submitted to the funding agency for Years I and II.

IMPLICATIONS FOR REPLICATION

The results of this project have major implications for future replication. Based on the experiences of the staff, the following section of this report is intended to offer suggestions to rehabilitation professionals interested in the development of vocational programming for individuals with cerebral palsy. The following factors should be considered prior to implementing client services.

A professional staff committed to carrying out goals and objectives of the project is a major consideration when recruiting personnel. Frequency in staff turnover seriously impairs the continuity of programmatic activities.

Interagency collaboration between local units, United Cerebral Palsy, vocational rehabilitation, and special education is imperative. The establishment of an advisory committee consisting of representatives of these agencies will help to establish an effective referral system and develop project guidelines and policies. By establishing these procedures at the onset of the project, day to day activities can be carried out more effectively.

Another important consideration would be the early development of a uniform data base which will qualify and quantify the application of the model developed for severely disabled persons with other diagnostic identifications.

The development of appropriate assessment tools for individuals with cerebral palsy is needed and necessary to obtain objective information regarding vocational potential. By establishing standardized instruments, the cost efficiency of an evaluation program would be lessened.

It was found that the time allocated to the various phases of the project were not sufficient due to the clients' sensori-motor limitations as well as their inexperience with the world of work. More extensive programming periods in all phases of the project should be seriously considered when working with a severely handicapped population including a five day program and the provision of weekend programming if a residential program is involved.

When developing a residential program, these factors are important to consider when selecting a site: 1) the unit should be barrier-free, 2) there should be accessibility to transportation, laundry facilities, shopping, and recreation, 3) the unit should be large enough to ensure privacy and accommodate the number of clients for the program, 4) residential attendants should be available at all times to provide

assistance when appropriate and necessary, and 5) medical personnel should be available on a 24 hour basis.

Establishing training sites in the community is an important factor in facilitating the transition from training to employment. Twelve weeks of programming was not always a sufficient amount of time to remediate deficits and to strengthen work skills required for employment.

The matching fund requirement of this federal grant hampered the Vocational Technology staff in recruiting referrals and diverted the attention of the staff from programmatic issues. The introduction of a sliding fee scale served to alleviate this situation.

Consideration should be given to broaden the catchment areas to include more than the state in which the program originates because of the lack of services available for severely handicapped individuals throughout the country.

Special efforts should be made to ensure adequate linkage among community agencies so that project related activities may be continued after federal funding ceases. Although this project enjoyed such cooperation on behalf of the clients it served, there is currently no resource available in the state which will assume its functions. This situation may become altered when and if federal funding patterns shift to more control at state level. Future research efforts could also focus on the testing of this service delivery model system in comparison with the efficiency and effectiveness of alternative models developed for working with people with cerebral palsy.

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